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Religion and Cognitive Development: implications for the developing world

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Abstract

Nothing shapes the morals, values, and folkways in the Global South as much as religion. It is the primary mark of identity and adhered to in an extraordinarily passionate manner. Hence, religion matters deeply and permeates directly or indirectly almost every vestige of life not least on growth and socioeconomic development of societies. This paper explores how religious thinking affects the cognitive development of people, especially children, which may, in turn, impact upon the variables of a country's economic growth and development. The working assumption is that a weakness in the former deleteriously affects the latter. Concludes by presenting various striking correlations that highlight that the influence of religion is least in the most advanced countries.

Keywords: religion, growth, socioeconomic development, cognitive development, Piaget

Introductionⁱ

Nothing shapes the morals, values, and folkways in the Global South as much as religion. It is the primary mark of identity and adhered to in an extraordinarily passionate manner. Hence, religion matters deeply and permeates directly or indirectly almost every vestige of life not least on growth and socioeconomic development of societies. The three dominant religions – Christianity, Islam, and Hinduism – in all their varieties are adhered to by some two-thirds of the population of the Global South. Given the importance of religion, this paper explores how religious thinking affects the cognitive development of people, especially children, which may, in turn, impact upon the variables of a country's economic growth and development. The working assumption is that a weakness in the former deleteriously affects the latter.

In the *Arab Knowledge Report 2014*, produced by the United Nations Development Programme (UNDP), the observation is made of the extraordinary weakness of science and R&D in the Arab world and its suggestion that a key factor for this was an aversion to the use of cognitive models, that is, to give careful attention to empirical data – or simple facts – and to partake in theorisation, buttressed by rationalisation. 'As long as society's culture is not

rooted in cognitive models that promote the scientific method, scientific thinking and rationality, the scientific culture will be marginalised. Yet society advances with knowledge, science, and innovation – and if there is a gap between the scientific community and the wider society, progress breaks down and, in turn, stifles scientific and rational thinking’ (*ibid.*, p. 52).

In sum, the Arab world and, by extension, the Muslim world, has not paid due diligence to the scientific method. Adherence to religious doctrines is necessarily in tension with cognitive thinking for the simple reason that faith obviates the need for evidence and to a significant extent for rational thinking; hence cognitive faculties are diminished. Criticism, curiosity, critiquing, hypothesising, theorising, experimentation, the search for evidence all appear to be suppressed or discouraged. To put it another way, they are not required or desired when truth is thought to emanate from holy texts.

In regard to economic development, much of the hard work had already been done by the countries which modernised and developed first, thereby setting the path for others to follow. While some follower countries proceeded to develop, modernise, and successfully compete in global markets, most have not – and many remain desperately poor. And here there is a difference that has rather been neglected: the successful followers are, in the main, East Asian countries that are characterised by a weak allegiance to religious precepts. The countries of the Confucian Culture Area (China, Japan, South Korea, Taiwan, Hong Kong, and Singapore) have roots in Confucianism but this is most definitely not the manifestation of the grip of religious dogma on society and way of life. On the contrary, Confucianism is a remarkably supple ideology, in marked contrast to what can be deemed ‘religion proper’ (see Wilhelm (1972 [1932])). The first successful non-European follower country was Japan, with few natural resources and prone to devastating earthquakes.

Now it is true that Japan had not been at the forefront of cutting edge research and invention – rather it was astonishingly adept at imitation and adaptation, and improving upon products invented in the West. Yet, modern Japan, despite economic travails since the early 1990s, has become one of the most technologically sophisticated countries in the world, with attendant high levels of per capita income. The cognitive processes in Japan are self-evident and the four ‘tiger economies’ (Hong Kong, Singapore, South Korea, and Taiwan) have followed suit in the past half century; and since the beginning of the 1980s, the same applies to China since it veered away from the command to a market economy.ⁱⁱ While some Confucian avatar may well link these countries, what is likely to be more germane with respect to their rapid growth, is their lack of religiosity; to all intents and purposes the state and society are secular (let us not be distracted by the oft-made remark of communism in China being akin to a religion; a mistaken conflation in our opinion) and religion, as in the developed West, is largely a private affair.

The successful imitation of the technologies and organisational structures of the advanced countries is predicated upon having appropriate capabilities, but acquiring these is by no means straightforward. Without the requisite human capital, it simply cannot be achieved, at least to a tolerable degree of success. This has been the unfortunate reality in regard to the overwhelming majority of countries of the world, the Global South, and contributes to the explanation of their low level of development. Weakness in cognitive processes must be considered a determining factor and attention, therefore, needs to be paid to the impact on these from strong indoctrination and acculturation – especially of children – in a religious milieu. Are there aspects of religious beliefs and practices – the religious life –

that act as an encumbrance to cognitive development which, in turn, deleteriously impact upon economic and social factors? This is indubitably a sensitive issue on which little has been written and research pertaining to it is conspicuous by its absence. Given its importance, there is a compelling need for extensive research to be done. Here we provide brief remarks and observations utilising Jean Piaget's model of cognitive development, one of the most renowned in child psychologyⁱⁱⁱ.

Piaget's theory of cognitive development

Piaget elucidated four stages of development that children go through. The first stage is the period of *sensorimotor intelligence* which covers the first two years of life; a period where learning and knowledge acquisition is developing, based on experiences and interactions but is very limited, and language ability is in its earliest phase (Wadsworth, 1984, ch. 3). Ordinarily, at such a young age, parents do not systematically condition their child so that the influence of ideological, especially religious, precepts and injunctions will largely be absent; but if they are imposed, the child's development is insufficient to make proper sense of such stimuli. That said, it would be interesting and worthwhile to conduct research on the upbringing of infants in the two years of life in highly religious and non-religious communities so as to compare and contrast differences in cognitive abilities that may arise in the ensuing years. But this stage is not relevant for our purposes, so will not be elaborated upon.

The second stage is the period of *preoperational thought* and spans the ages of two and seven. It is characterised by the development of language and other forms of representation. The child is increasingly able to internally represent events, that is, to be able to think and becomes less dependent on sensorimotor actions. There are five forms of representation: the first is 'deferred imitation', which is the imitation of objects and events that have not been present for some time; the child has developed the ability to mentally represent (remember) the behaviour imitated. The second is 'symbolic play', a form of self-expression with no intention of communicating with others. Hence, while language skills are still developing, symbolic play is a forum for ideas, thoughts and concerns. The third form is 'drawing', where children simply represent things by drawing them. The fourth is 'mental images', or the internal representations (symbols) of objects and past perceptual experiences. They tend to be static rather than moving. The fifth representation is 'spoken language' – by the age of four, the child has largely mastered the use of spoken language, which facilitates conceptual development by allowing verbal exchange with other persons, thus enabling the 'socialisation of action', the internalisation of words and appearance of thought; and the internalisation of action which enables 'mental experiments' (*ibid.*, ch. 4).

The well-known Jesuit adage ('Give me a child until he is seven and I will give you the man') applies to this stage and we can hypothesise how the free development of the mind, in all its multitudinous forms, is blocked by powerful indoctrination – not just by religious means but also political, e.g. children in Mao's China or the Hitler youth in Nazi Germany were practically brainwashed; and children raised in present day North Korea suffer a similar fate.

Can religious indoctrination affect symbolic play, that is, self-expression is somehow curtailed? Furthermore, is socialisation of action and ability to conduct mental experiment prevented from fully flourishing? If all these were indeed the case, then the Jesuit adage is valid. But humans are not robots, so what would be necessary to ensure that these core elements of the stage of pre-operational thought are suppressed is indoctrination which is

reinforced by punitive sanctions – especially those couched in religious terms, *viz.*, challenging orthodoxy is contrary to God's will. Obviously, the threat of physical punishment has long been utilised to coerce children both by parents and teachers. So relentless indoctrination plus severe intimidation can ostensibly crush a child's personality and cognitive development. In the case of girls, religious edicts can be buttressed by rigid socialisation of expectations as to their role in the family and community.

Drawing of images similarly can be strongly proscribed – suppressing nascent artistic, creative, talent, at a young age. In reality, the level of religious acculturation and indoctrination is intensified during the third stage which is the *concrete operation stage* – 7-11 years of age – soon after children commence school. If, in highly religious societies, there is insufficient religious instruction at home, the shortfall is invariably covered in school and at a place of worship. The child is now able to apply logical thought to concrete problems. S/he evolves logical thought processes (operations) that can be applied to problems that exist, that is to say, are concrete (*ibid.*, p.113). Unlike the child in the pre-operational phase, the child in the concrete operations stage can solve conservation problems^{iv} and provide correct reasoning for answers given.

When faced with a discrepancy between thought and perception, the concrete operation child makes cognitive and logical decisions, as opposed to perceptual decisions. S/he attains reversibility of mental operations, that is, to be able to follow the line of reasoning back to where it started (*ibid.*, p. 85). The concrete operational stage is the transition between pre-logical (pre-operational) thought and the completely logical thought of older children – the stage of *formal operations* – aged between eleven and fifteen. At this fourth stage, a child develops reasoning and logic to solve all classes of problems – thought is freed from direct experience. His/her cognitive structure reaches maturity during this stage so that there are no further structural improvements in the quality of reasoning. But the content and function of intelligence may improve. Wadsworth makes the crucial point that not all adolescents and adults fully develop formal operations; pointing to studies which show that a proportion of the American adult population never advances much beyond operational reasoning (*ibid.*, p. 137).

A child with formal operation has the capability to utilise theories and hypotheses in tackling problems so that scientific reasoning and hypotheses building-and-testing are invoked to aid the understanding of causation. Piaget (1952, p. 461) states that in verbal thinking hypothetico-deductive reasoning is characterised by the possibility of accepting any sort of data as purely hypothetical, and reasoning correctly from them.

It is during the pre-operational stage that the customs and doctrines of religions begin to be instilled in a systematic manner. In communities and societies where religion is deemed to be of great importance, it is also the period in which a child's religious identity is forged by parents, the wider family and community, and in schools. Children are instructed to regularly attend places of worship so that the role of religious teachers and leaders becomes decisive in thought processes. In such communities, religious acculturation is so powerful that it invariably remains unchanged for the rest of a child's life; this is the essence of the Jesuit motto. Hence, switching religions is highly rare.

Children comply with expectations: they become aware of what is correct, appropriate, and acceptable. Though living up to expectations is the norm irrespective of the dominant religion or ideology, under certain conditions it is more acute than others, notably

where there is authoritarian rule. Thus, in highly religious societies such as Saudi Arabia, from the pre-operational stage into adulthood, a very narrow path is set for both boys and girls – with zero tolerance for dissent on religious matters, and little on others besides, given that the laws are based on a strict interpretation of Sharia. The question arises whether under such a repressive environment, with an exceedingly high degree of indoctrination and attendant ‘thought control’, children’s cognitive abilities are harmed. Or, more precisely, whether certain elements of the pre-operational stage are impaired.

From extensive experiments, Bärbel Inhelder and Jean Piaget draw the following insightful finding which is highly pertinent to the core argument of this paper:

The adolescent - about 14-15 years of age - comes to control not only hypothetico-deductive reasoning and experimental proof based on the variation of a single factor with the others held constant... but also a number of operational schemata which he will use repeatedly in experimental and logical-mathematical thinking ... The development of formal structures in development is linked to maturation of cerebral structures. However, the exact form of linkage is far from simple, since the organisation of formal structures must depend on the social milieu as well... *A particular social environment remains indispensable for the realisation of these possibilities. It follows that their realisation can be accelerated or retarded as a function of cultural and educational conditions.* The growth of formal thinking remains dependant on social as much as and more than neurological factors (Inhelder and Piaget, 1958, pp. 335, 337; italicisation by RH).

Formal cognitive thought encompasses three types of reasoning: hypothetico-deductive, scientific-inductive and reflexive-abstractive. Deductive reasoning is reasoning from general principles to specific instances; hypothetico-deductive reasoning deduces conclusions from a hypothesis which may or may not be true. Inductive reasoning is reasoning that flows from specific facts to general conclusions; the bedrock for the ascertaining of scientific laws. Reflexive abstraction is the construction of logical-mathematical knowledge and involves abstraction from a lower level to a higher level, and is based on existing knowledge. Internal reflection can result in the attainment of new knowledge. Reasoning by analogy – which is not necessarily observable – is an example of reflective abstraction (Wadsworth, *op. cit.*, pp. 138-139,145).

The “nature-nurture” debate is of relevance here. Nature, that is, the genetic variation in individuals, can affect cognitive development – as too can nurture, the environment in which people live. We shall not consider the former suffice to acknowledge that it may be important; hence, we operate the *ceteris paribus* principle with respect to biology. In regard to nurture, specifically the experiences arising from day-to-day life, the obvious point is that some environments are more conducive to the cognitive development of children and adults than others.

In strongly religious societies ‘a fully- worked out system of discipline’ is *de rigueur*. In societies where one religion is strongly dominant, cross-fertilisation of ideas is likely to be diminished (there is strong hierarchy, conformity, and a disincentive to innovate, to think out of the box). Communities in such societies are, in effect, isolated and stagnant. We should like to extend the argument further to suggest that the doctrinaire teaching of religion and a draconian compliance with rituals and customs will inevitably affect the cognitive development of children in each of the four stages mapped out by Piaget.

According to Piaget, a child integrates new perceptual, motive or conceptual matter into existing schemata (mental structure for organising the environment) by a process of *assimilation* that is, the fitting of new experiences/stimuli into the schemata at any particular stage. When a stimulus cannot be assimilated successfully into a schema, the child

accommodates to it by either creating a new schema or modifying an existing schema. The balance between assimilation and accommodation is known as *equilibrium*; conversely an imbalance between assimilation and accommodation is *disequilibrium* – and the process of moving from the latter to the former is *equilibration*. This is a constant process and each new equilibrium implies cognitive development (Wadsworth, *op. cit.*, ch. 1).

In a dynamic environment there is greater extent and types of stimuli which children encounter; hence, the process of equilibration is continuous, leading to the assimilation and accommodation of new types of knowledge. For such children, disequilibrium is not worrisome – rather, it is the norm and leads to rapid and sustained cognitive development at each stage. By contrast, in less stimulating environments, particularly those that are highly controlled, there is a reduced level of disequilibrium. While this may reduce cognitive dissonance, it militates against cognitive development thereby harming the nurturing of an inquisitive mind and fomenting of problem-solving skills. It is reasonable to posit this being the outcome of a strongly religious environment.

Concluding remarks

In *Society without God: What the Least Religious Countries can Tell Us About Contentment*, Phil Zuckerman provides the following powerful observation and attendant correlation:

It is a great socio-religious irony... that when we consider the fundamental values and moral imperatives contained within the world's great religions, such as caring for the sick, the infirm, the elderly, the poor, the orphaned, the vulnerable; practicing mercy, charity, and goodwill toward one's fellow human beings; and fostering generosity, humility, honesty, and communal concern over individual egotism – these traditionally religious values are most successfully established, institutionalised, and put into practice at the societal level in the most irreligious nations in the world today (Zuckerman, 2008, p. 30).

The demonstration effect that is so compelling from these correlations is that the countries of the Global South, if they are to develop and catch up with the developed world, must downplay the role of religion in people's lives and institutions writ large, and move towards secularising culture and society. This is not only essential for the cognitive development of children but is also a rational approach to the tasks necessary for economic development and modernisation. As soon as supernatural beliefs dominate, rationalism risks being marginalised or abandoned and, as ever, there is the temptation not to strive to improve the conditions of life, but instead to pray to the creator for one's well-being – a mode of thought which is at the core of religion, especially those characterised by fatalism.

There is compelling evidence to think that the terrain in societies where religion plays an important role is a crucial determinant of the capacities, capabilities, and skill formation of a population. Our conclusion is that very high levels of religious beliefs in the Global South suppress all this. There is, therefore, the pressing need to move towards a reduction in the role of religion and a decisive move towards the secularisation of society. If the 'secularisation of the European mind' was a necessary condition for the rapid economic and social advancement of Europe – especially Western Europe – precisely the same secularisation of the mind is also necessary in large tracts of the world which remain undeveloped or underdeveloped. The core thesis is that minds not secularised are infused with supernatural and irrational thinking, and these powerfully militate against the dynamic of growth, development, and the uplifting of people.

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ⁱ This paper is based on chapter 6 of Hasan, 1917

ⁱⁱ For example, in the 2015 PISA (Programme for International Student Assessment) science rankings, East Asian countries were dominant: Singapore was ranked 1st, Japan 3rd, Taiwan 4th, China (Macao) 6th, Vietnam 8th, China (Hong Kong) and China (Beijing and Shanghai) 9th (BBC News, 2016)

ⁱⁱⁱ Piaget has had numerous critics over the years as elaborated upon by Peter Sutherland (1992).

^{iv} This is when a child realises the inalterability of a quality despite the change of appearance, e.g. four apples are the same as four oranges; this is the conservation of numbers.